

ABSTRACT

[0067] An RFID system using encoded digital information utilizing pulsed linear frequency modulation (LFM). The LFM waveform is sent from an aircraft or satellite and is received by a transponder. The LFM waveform is demodulated using both, an AM and an FM receiver. The demodulated data is compared to preprogrammed criteria tables, and after validation is decoded and utilized. Algorithms in the transponder are used to determine the frequency deviation and for calculating the direction of the slope of the LFM input signal. The valid RF signal is stored in a delay element, encoded with the transponder data using phase modulation (PM), and frequency modulation (FM). The tag transmission is synchronized to the input LFM waveform. The transmit/receive chopping signal prevents unwanted oscillations and is capable of randomization.